

REMARKS

Favorable reconsideration and withdrawal of the rejections set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

Claims Status

Claims 1 through 23 remain pending in the application. Claims 1 and 13 have been amended to even more succinctly define the invention and/or to improve their form. It is respectfully submitted that no new matter has been added. Claims 1 and 13 are the only independent claims pending in the application.

Art Rejections

Claims 1, 5, and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,163,663 (Shinohara, et al.).

Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. as applied to Claim 1 in view of Japanese Patent Document No. 2002-278262.

Claims 4, 7, 8, 13, 16, 18, 19, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. in view of U.S. Patent Application Publication No. 2003/0152856 (Mizoe, et al.).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. as applied to Claim 1 in view of U.S. Patent No. 6,391,511 (Okamoto, et al.).

Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. and Mizoe, et al. as applied to Claim 13 and further in view of Okamoto, et al.

Claims 9 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. as applied to Claim 1 in view of U.S. Patent Application Publication No. 2004/0157735 (Hare).

Claims 20 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. and Mizoe, et al. as applied to Claim 13 and further in view of Hare.

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. as applied to Claim 1 in view of U.S. Patent No. 6,856,151 (Naka, et al.).

Claims 14 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. and Mizoe, et al. as applied to Claim 13 and further in view of Japanese Patent Document No. 2002-278262.

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, et al. and Mizoe, et al. as applied to Claim 13 and further in view of Naka, et al.

The rationale underlying each of the foregoing art rejections is succinctly set forth in the Official Action.

Response to Art Rejections

The rejections are respectfully traversed.

Amended Claim 1 calls for a developing apparatus that includes a developer carrying member for carrying a developer; a developer regulating member, contacted to said developer carrying member, for regulating a thickness of a layer of the developer on the developer carrying member; and a lubricant provided in a contact portion between the developer carrying member and the developer regulating member before the developer is carried on the developer member. The charge polarity of the lubricant is opposite to a

charge polarity of the developer, and a weight average particle size of the lubricant is not more than 1/3 of a weight average particle size of the developer.

Amended Claim 13 calls for a developing apparatus that includes a developer carrying member; a developer regulating member; and a lubricant with a charge polarity as recited in amended Claim 1. In amended Claim 13, a weight average particle size (μm) of the lubricant is smaller than an arithmetic average roughness Ra value (μm) of a surface of the developer carrying member.

The invention defined in amended independent Claims 1 and 13 includes the feature that a lubricant is provided in a contact portion between the developer carrying member and the developer regulating member before the developer is carried on the developer carrying member. See page 25, line 14, *et. seq.* of the specification. See especially, page 27, lines 13 through 18 of the specification.

Claim 1 also includes the feature that the charge polarity of the lubricant is opposite to the charge polarity of the developer, and the weight average particle size of the lubricant is not more than 1/3 of the weight average particle size of the developer.

Claim 13 also includes the feature that the charge polarity of the lubricant is opposite to the charge polarity of the developer, and the weight average particle size (μm) of the lubricant is smaller than an arithmetic average roughness Ra value (μm) of the surface of the developer carrying member.

These features are effective to avoid occurrences of image density insufficiency and ghost images upon the beginning of use of the developing device.

As above-noted, Shinohara, et al. is cited under 35 U.S.C. § 102(b) as anticipating the subject matter of Claim 1, and Shinohara, et al. is applied in combination with Mizoe, et al. under 35 U.S.C. § 103(a) as rendering obvious the subject matter of Claim 13.

Shinohara, et al. discloses application of an external additive to the developer, but such externally-added material is not provided in a contact portion between a developer carrying member and a developer regulating member before the developer is carried on the developer carrying member as recited in amended Claims 1 and 13. Even if the externally-added material is used, the amount of electric charge of the developer is not at such a proper level upon the beginning of use of the developing device so as to avoid the problems occurrence of image density insufficiency and ghost images. The occurrence of image density insufficiency even in the case that polymer particles are externally added to the toner is described at page 35, lines 9 through 16 of the specification of the present application. The claimed lubricant in the present invention is not effective if it is simply mixed into the developer. Rather, the beneficial effect is realized by providing the lubricant in the contact portion between the developer carrying member and the developer regulating member before the developer is carried on the developer carrying member as recited in amended Claims 1 and 13.

Further, with respect to Claim 13, the Examiner recognizes that Shinohara, et al. does not teach “a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member.” Accordingly, the Examiner relies on Mizoe, et al. for allegedly disclosing this feature.

Mizoe, et al. also discloses adding an externally-added material to a developer. However, Applicants submit that the externally-added material is not provided in a contact portion between a developer carrying member and the developer regulating member before the developer is carried on the developer carrying member.

The other art, excluding Mizoe, et al., noted above, has been cited in combination with Shinohara, et al. for showing salient details of the invention recited in dependent claims. It is respectfully submitted that the art does not remedy the deficiencies of Shinohara, et al.

Applicants note that Japanese Laid-open Patent Application 2002-278262, which is discussed at page 4, lines 17 through 27 of the specification, discloses coating a developing sleeve with the effect that a lubricant is provided in a contact portion between a developer carrying member and a developer regulating member before the developer is carried on the developer carrying member. However, the combination of the Japanese patent document with Shinohara, et al. is untenable since Shinohara, et al. discloses an externally-added material.

Applicants submit that applying the lubricant in the contact portion between the developer carrying member and the developer regulating member before the developer is carried on the developer carrying member and providing a lubricant having a charge polarity and the weight average particle size as claimed making the lubricant function as a micro-carrier are patentable features.

In view of the foregoing, it is respectfully submitted that amended independent Claims 1 and 13 are allowable over the cited art whether taken individually or in combination.

Dependent Claims

Claims 2 through 12 and 14 through 23 depend either directly or indirectly from one of Claims 1 and 13 and are allowable by virtue of their dependency and in their own right for further defining Applicants' invention. Individual consideration of the dependent claims is respectfully requested.

Closing Comments

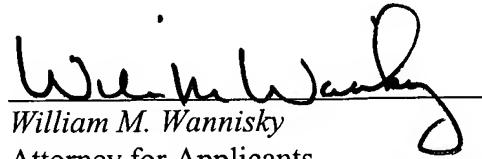
It is respectfully submitted that the pending claims are allowable over the art of record and that the application is in condition for allowance.

This Amendment could not have been presented earlier in the prosecution, inasmuch as it was earnestly believed that the claims heretofore on file were in condition for allowance. No new claims have been presented. It is believed that the Examiner's familiarity with the present application will allow full consideration hereof without the expenditure of undue time and effort.

Favorable reconsideration and early passage to issue of the present application are earnestly solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our New York office at the address shown below.

Respectfully submitted,



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